

United States Patent [19]

Winzer

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[54] **STAR COUPLER FOR LOCAL NETWORKS
OF OPTICAL COMMUNICATIONS SYSTEM**[75] Inventor: Gerhard Winzer, Putzbrunn, Fed.
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[30] **Foreign Application Priority Data**

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455/607[58] Field of Search 455/607, 612, 606, 610;
350/96.15, 96.16, 96.19, 96.17, 96.18, 171[56] **References Cited****U.S. PATENT DOCUMENTS**

4,446,515 5/1984 Sauer et al. 455/607

FOREIGN PATENT DOCUMENTS

58-60842 4/1983 Japan 455/612

OTHER PUBLICATIONSFinley, Jr., "Optical Fibers in Local Area Networks",
IFOC, vol. V, pp. 47-55.Winzer, "Single-Mode and Multimode All-Fiber Di-
rectional Couplers for WDM", Applied Optics, vol. 20,
No. 18, Sep. 15, 1981, pp. 3128-3135.*Primary Examiner*—Joseph A. Orsino, Jr.*Attorney, Agent, or Firm*—Hill, Van Santen, Steadman &
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[57]

ABSTRACT

A star coupler for an optical data bus system in a star configuration or other local networks comprises a passive optical star coupler in the form of a transit mixer which distributes the optical signals, transmitted by subscriber transmitters and supplied to the passive optical star coupler by incoming optical waveguides and output via outgoing optical waveguides. The star coupler exhibits an additional optical transmitter whose optical signals are likewise capable of being input coupled in the passive optical star coupler, as well as a listening device for listening to the optical signals supplied to the passive optical star coupler in the incoming optical waveguides. The listening device emits signals which are related to the detected signals. Embodiments of a star coupler with a passive optical reflection star coupler are also described.

20 Claims, 5 Drawing Figures